

## CLAIMS

***What is claimed is:***

- 1    1.     A triphone preselection cost database for use in speech synthesis, the database  
2    generated according to a method comprising:  
3        1) selecting a triphone sequence  $u_1 - u_2 - u_3$ ;  
4        2) calculating a preselection cost for each 5-phoneme sequence  $u_a - u_1 - u_2 - u_3 -$   
5     $u_b$ , where  $u_2$  is allowed to match any identically labeled phoneme in a database and the  
6    units  $u_a$  and  $u_b$  vary over the entire phoneme universe; and  
7        3) storing a group of the selected triphone sequences exhibiting the lowest costs in  
8    a triphone preselection cost database.
- 1    2.     The triphone preselection cost database of claim 1, wherein storing the group of  
2    selected sequences comprises:  
3        a) determining a plurality of N least cost database units for the particular 5-  
4    phoneme context;  
5        b) performing the union of the N least cost units for all combinations of  $u_a$  and  
6     $u_b$ ;  
7        c) storing the union created in step 4) in a triphone preselection cost database;  
8    and  
9        d) repeating steps 1) – 3) for each possible triphone sequence.
- 1    3.     The triphone preselection cost database of claim 1, the method for generating the  
2    database further comprising generating a key to index each triphone in the database.
- 1    4.     The triphone preselection cost database of claim 2, wherein a plurality of fifty  
2    least costs sequences for any possible 5-phone context are stored.
- 1    5.     The triphone preselection cost database of claim 1, wherein the preselection cost  
2    is the target cost or an element of the target cost.

1     **6.**     A computer-readable medium storing a triphone preselection cost database for use  
2     in speech synthesis, the database generated according to a method comprising:

- 3             1) selecting a triphone sequence  $u_1 - u_2 - u_3$ ;  
4             2) calculating a preselection cost for each 5-phoneme sequence  $u_a - u_1 - u_2 - u_3 -$   
5      $u_b$ , where  $u_2$  is allowed to match any identically labeled phoneme in a database and the  
6     units  $u_a$  and  $u_b$  vary over the entire phoneme universe; and  
7             3) storing a group of the selected triphone sequences exhibiting the lowest costs in  
8     a triphone preselection cost database.

1     **7.**     The computer-readable medium of claim 6, wherein storing the group of selected  
2     sequences comprises:

- 3             a) determining a plurality of N least cost database units for the particular 5-  
4     phoneme context;  
5             b) performing the union of the N least cost units for all combinations of  $u_a$  and  
6      $u_b$ ;  
7             c) storing the union created in step 4) in a triphone preselection cost database;  
8     and  
9             d) repeating steps 1) – 3) for each possible triphone sequence.

1     **8.**     The computer-readable medium of claim 7, the method for generating the  
2     database further comprising generating a key to index each triphone in the database.

1     **9.**     The computer-readable medium of claim 7, wherein a plurality of fifty least costs  
2     sequences for any possible 5-phone context are stored.

1     **10.**    The computer-readable medium of claim 7, wherein the preselection cost is the  
2     target cost or an element of the target cost.

1     **11.**    A method of generating a triphone preselection cost database for use in speech  
2     synthesis, the method comprising:

- 3             1) selecting a triphone sequence  $u_1 - u_2 - u_3$ ;

- 4           2) calculating a preselection cost for each 5-phoneme sequence  $u_a - u_1 - u_2 - u_3 -$   
5  $u_b$ , where  $u_2$  is allowed to match any identically labeled phoneme in a database and the  
6 units  $u_a$  and  $u_b$  vary over the entire phoneme universe; and  
7           3) storing a group of the selected triphone sequences exhibiting the lowest costs in  
8 a triphone preselection cost database.

- 1   **12.**    The method of generating a triphone preselection cost database of claim 11,  
2 wherein storing the group of selected sequences comprises:  
3           a) determining a plurality of N least cost database units for the particular 5-  
4 phoneme context;  
5           b) performing the union of the N least cost units for all combinations of  $u_a$  and  
6  $u_b$ ;  
7           c) storing the union created in step 4) in a triphone preselection cost database;  
8 and  
9           d) repeating steps 1) – 3) for each possible triphone sequence.

- 1   **13.**    The method of generating a triphone preselection cost database of claim 11, the  
2 method for generating the database further comprising generating a key to index each  
3 triphone in the database.

- 1   **14.**    The method of generating a triphone preselection cost database of claim 12,  
2 wherein a plurality of fifty least costs sequences for any possible 5-phone context are  
3 stored.

- 1   **15.**    The method of generating a triphone preselection cost database of claim 11,  
2 wherein the preselection cost is the target cost or an element of the target cost.